

The bis-thioethers based on 3,4-dichloro-2(5H)-furanone and propane-1,3-dithiol

© Hoang Thi Lien, Almira R. Kurbangalieva,*⁺ Anna S. Yezhova,
Evgeny A. Berdnikov, and Galina A. Chmutova*

Department of Organic Chemistry. A.M. Butlerov Institute of Chemistry. Kazan (Volga) Federal University.
Kremlevskaya St., Kazan 18, 420008. Republic of Tatarstan. Russia.
Phone: +7 (843) 233-74-62. E-mail: Almira.Kurbangalieva@ksu.ru

*Supervising author; ⁺Corresponding author

Keywords: heterocycles, 2(5H)-furanone, mucochloric acid, propane-1,3-dithiol, bis-thioethers, diastereomers, NMR spectroscopy.

Abstract

We studied the reactivity of 3,4-dichloro-2(5H)-furanone in relation to propane-1,3-dithiol in the conditions of the basic or acid catalysis. При взаимодействии mucochloric acid and its 5-alkoxy derivatives with propane-1,3-dithiol in the presence of triethylamine there were obtained new bis-thioethers, in which two molecules of the fragment 2(5H)-furanone are bound on its carbon atoms C⁴ through –S(CH₂)₃S– chains. Under acid catalysis the reaction of mucochloric acid with propane-1,3-dithiol proceeds with substitution of the hydroxyl group and the formation of the bis-thioether bound with carbon atoms by C⁵ γ-lactone cycles. There have been revealed similarities and differences in the reactions of 3,4-dichloro-2(5H)-furanone with propane-1,3-dithiol and 1,2-ethane-dithiol in the conditions of basic and acidic catalysis. The structures of all newly synthesized bis-thioethers 2(5H)-furanone were proved by IR spectroscopy, ¹H NMR and ¹³C {¹H}.